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The riemann boundary value problem on non-rectifiable arcs and the cauchy transform

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Abstract

© 2012 Springer Basel. In this paper we introduce an alternative way of defining the curvilinear Cauchy integral over non-rectifiable arcs on the complex plane. We construct this integral as the convolution of the distribution (2πiz)− 1 with a certain distribution such that its support is a non-rectifiable arc. These convolutions are called Cauchy transforms. A s an application, solvability conditions of the Riemann boundary value problem are derived under very weak conditions on the boundary.

Keywords

Cauchy transform, Metric dimension, Non-rectifiable arc, Riemann boundary value problem